AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method of producing a piezoelectric ceramic thick film on a substrate, said method comprising:

- mixing liquid phase precursors of Li_2O and Bi_2O_3 metal oxides to form a Li-Bi solution;
- forming a suspension of a piezoelectric ceramic material in powder form and a fluid medium by ultrasonic vibration;
- forming a liquid mixture by mixing the suspension of powdered material with the Li-Bi solution, the Li_2O and Bi_2O_3 having melting points lower than a temperature required for densifying the piezoelectric ceramic thick film by sintering, said liquid mixture obtained by mixing the suspension of powdered material and the Li-Bi solution having a greater degree of homogeneity than that of a mixture obtained by mechanically mixing the powdered material;
- drying the liquid mixture to form a dried precipitate;
- milling the dried precipitate to form a powdered precipitate;
- adding an organic carrier to the powdered precipitate;
- further milling the powdered precipitate to form a paste;
- depositing a layer of the paste, as a wet film, onto the substrate; and

annealing the substrate with the film at a temperature and for a time sufficient to cause transformation of the paste into the thick film.

2. (Original) A method according to claim 1, wherein the piezoelectric ceramic material is an inorganic ceramic material which exhibits the piezoelectric effect.

3. (Original) A method according to claim 2, wherein the piezoelectric ceramic material is lead zirconate titanate (PZT).

4. (Previously Presented) A method according to claim 1, wherein the Li_2O and Bi_2O_3 metal oxides are adapted to form a glass phase upon annealing at a temperature between 800° and 1000°C.

5-11. (Cancelled)

12. (Previously Presented) A method according to claim 1, wherein the powdered piezoelectric material is fine-grained having an average grain size of below about 1.0μm.

13. (Previously Presented) A method according to claim 12, wherein the average grain size is about 0.5μm.

14. (Previously Presented) A method according to claim 1, wherein the total amount of the Li_2O and Bi_2O_3 metal oxides in the thick film are between about 1% and 5%, by weight.

15. (Cancelled)

16. (Previously Presented) A method according to claim 1, wherein the liquid mixture is dried at a temperature between 75° and 150°C to form the dried precipitate.

17. (Original) A method according to claim 16, wherein the liquid mixture is dried at a temperature between about 75°C and 105°C for up to 10 hours.

18. (Cancelled)

19. (Previously Presented) A method according to claim 1, wherein the powdered precipitate is formed by milling the dried precipitate with a ball mill.

20. (Cancelled)

21. (Previously Presented) A method according to claim 1, wherein the organic carrier is selected from one or more of ethyl cellulose, terpineol, and an organic binder containing texanol.

22. (Previously Presented) A method according to claim 21, wherein the organic carrier is the organic binder containing texanol.

23. (Cancelled)

24. (Previously Presented) A method according to claim 1, wherein the paste is deposited onto a surface of the substrate, by a printing process, as the wet film.

25. (Original) A method according to claim 24, wherein the printing process is a screen printing process.

26. (Previously Presented) A method according to claim 1, wherein, prior to annealing, the layered substrate including the deposited wet film is dried.

27. (Previously Presented) A method according to claim 1, wherein, prior to annealing, an isostatic pressure is applied to the film.

28. (Previously Presented) A method according to claim 26, wherein the drying temperature of the layered substrate including the deposited wet film is between about 20°C and about 175°C.

29. (Previously Presented) A method according to claim 1 wherein the layered substrate is annealed at a temperature of between about 820°C and about 950°C.

30. (Original) A method according to claim 29, wherein the annealing is conducted for between about 10 minutes and about 4 hours.

31. (Previously Presented) A method according to claim 1, wherein the substrate is formed of silicon.

32. (Previously Presented) A method according to claim 1, wherein the surface of the substrate has a coating of platinum and the paste is deposited on this platinum coating.

33. (Previously Presented) A method according to claim 1, wherein a metal electrode is formed on the piezoelectric ceramic thick film.

34. (Previously Presented) A method according to claim 33, wherein the metal electrode is formed of silver and the electrode is deposited on the film by a screen printing process.

35-38. (Cancelled)

39. (Previously Presented) A method according to claim 1, wherein the powdered precipitate is formed by milling the dried precipitate with a ball mill,

wherein the layered substrate is annealed at a temperature of between about 820°C and about 950°C for about 4 hours,

wherein a metal electrode is formed on the piezoelectric ceramic thick film.

40. (New) A substrate having a piezoelectric ceramic thick film thereon, formed according to the method of claim 1.

41. (New) piezoelectric sensor or actuator having a piezoelectric ceramic thick film, wherein said thick film has been formed on said substrate according to the method of claim 1.